

**FIG.1**  
Prior Art

INPUTS	NUMBER OF ANDs	NUMBER OF ORs	TOTAL GATES
2	1	0	1
3	3	2	5
4	6	5	11
5	10	9	19
6	15	14	29
7	21	20	41
8	28	27	55
9	36	35	71
10	45	44	89
11	55	54	109
12	66	65	131
13	78	77	155
14	91	90	181
15	105	104	209
16	120	119	239

**FIG.2**

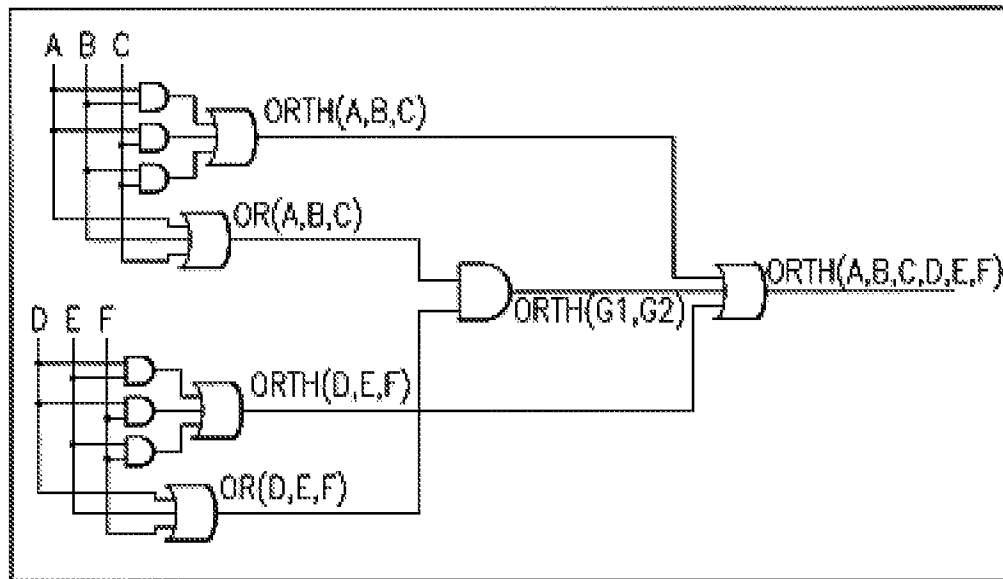


FIG.3A

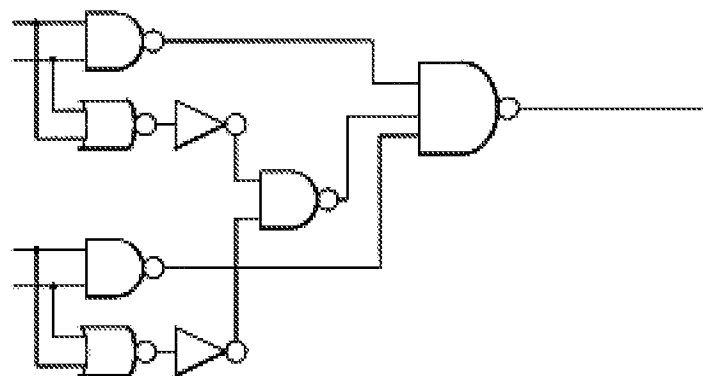


FIG.3B

- $ORTH(A,B,C,D)=AB+AC+AD+BC+BD+CD$
- $=AB+CD+AC+AD+BC+BD$
- $=AB+CD+(A+B)(C+D)$
- $=ORTH(A,B)+ORTH(C,D)+ORTH(A+B,C+D)$

FIG.4

CELLNAME	WIDTH	NORMALIZED AREA
INV	22.5	2.5
NAND2	27	3
NAND3	36	4
NAND4	45	5
NOR2	27	3
NOR3	36	4

FIG.5

INPUTS	NUMBER OF ANDs	NUMBER OF ORs	TOTAL GATES	NUMBER OF ORTH2	NUMBER OF ORTH3	ADDITIONAL OR2's	NEW TOTAL GATES	SAVINGS (IN GATES)
2	1	0	1	1		0	1	0
3	3	2	5		1	0	5	0
4	6	5	11	3		4	7	4
5	10	9	19	2	1	5	12	7
6	15	14	29	3	1	6	14	15
7	21	20	41	6	0	10	16	25
8	28	27	55	7		12	19	36
9	36	35	71	7	1	14	26	45

**FIG.6**

INPUTS	TOTAL GATES (OLD STYLE)	TOTAL GATES (NEW STYLE)	TOTAL AREA (OLD STYLE)	TOTAL AREA (NEW STYLE)	SAVINGS (IN GATES)	SAVINGS (IN AREA)
4	4	3	22	15	1	7
6	12	14	61	45	-2	16
8	23	19	116	66	4	50
10	36	26	185	90	10	95

**FIG.7**